

$$K) \int 7x^3 \sqrt{x} \, dx$$

$$7x \int x^3 \sqrt{x} \, dx$$

$$7x \int x^3 \cdot x^{\frac{1}{2}} \, dx$$

$$7x \int x^{\frac{7}{2}} \, dx$$

$$\frac{7 \cdot 2x^{\frac{9}{2}} \sqrt{x}}{9}$$

$$\frac{14x^{\frac{9}{2}} \sqrt{x}}{9}$$

$$\frac{14x^{\frac{9}{2}} \sqrt{x}}{9} + C$$

$$L) \int 4x^3 + x^2 \, dx$$

$$\int 4x^3 \, dx + \int x^2 \, dx$$

$$x^4 + \frac{x^3}{3}$$

$$x^4 + \frac{x^3}{3} + C$$

$$k) \int 7x^3 \sqrt{x} dx = 7 \int x^{1/3} dx = 7 \int x^{2 + x^{1/2}}$$

$$7x^{4/2 + 1/2} = (7) x^{7/2 + 2/2} = (7) \frac{x^{9/2}}{9/2} = \frac{14x^{9/2} + c}{9}$$

$$l) \int 4x^3 + x^2 dx = 4 \int x^{3+1} = \frac{4x^4}{4} = x^4 + c$$

$$x^2 = \frac{x^{2+1}}{2+1} = \frac{x^3}{3} = x^4 + \frac{x^3}{3} + c$$

$$m) \int 3u^5 - 2u^3 dx = 3 \int \frac{u^{5+1}}{5+1} = \frac{3u^6}{6} + c$$

$$2u^3 = 2 \int \frac{u^{3+1}}{3+1} = \frac{2u^4}{4} = \frac{3u^6}{6} - \frac{2u^4}{4} + c$$

$$\frac{1u^6}{2} - \frac{1u^4}{2} + c$$

$$n) \int y^3 (2y^2 - y) dy = \int 2y^5 - y^4 dy$$

$$2y^5 = 2 \int \frac{y^{5+1}}{5+1} = \frac{2y^6}{6} + c \quad / \quad \int \frac{y^{4+1}}{4+1} = \frac{y^5}{5} + c$$

$$c) \int x^9(5-x^2) dx = 5x^9 - x^6 dx = 5 \int x^{\frac{7+1}{1}} = \frac{5x^7}{5} + C$$

$$\frac{x^{6+1}}{6+1} = \frac{x^7}{7} + C = \frac{5x^9}{5} - \frac{x^7}{7} + C$$

$$\frac{x^5 - x^7}{7} + C$$

$$d) \int (3-2t-t^2) dt = \int (3t-2t-t^2) dt =$$

$$3 \int \frac{t^{1+1}}{1+1} = \frac{3t^2}{2} + C \quad 2t = 2 \int \frac{t^{1+1}}{1+1} =$$

$$\frac{2t^2}{2} + C$$

$$\frac{t^{2+1}}{2+1} = \frac{t^3}{3} + C = \frac{3t^2}{2} - \frac{2t^2}{2} - \frac{t^3}{3} + C$$

$$3t^2 - t^2 - \frac{t^3}{3} + C = 2t^2 - \frac{t^3}{3} + C$$

$$1) \int \sqrt{x^2} dx$$

$$x^{2 \cdot \frac{1}{2}} = \frac{x^{2+1}}{2+1} = \frac{x^3}{3}$$

$$2 \sqrt{x^0} = \frac{\sqrt{x^2}}{3} + C$$

$$2) \int \sqrt[4]{x^3} dx$$

$$x^{3/4} = \frac{x^{3/4+1}}{3/4+1} = \frac{x^{7/4}}{7/4} + C$$

$$3) \int \sqrt[3]{2x} - 3\sqrt{x^7} dx$$

$$(2x)^{1/3} - x^{7/2}$$

$$\begin{aligned} & \frac{(2x)^{1/3+1/3}}{1/3+1/3} - \frac{x^{-7/2+1}}{-7/2+1} + C \rightarrow \frac{\sqrt[3]{2x^2}}{2} + \frac{\sqrt{x}}{3} + C \\ & = \frac{6x^{2/3}}{4} + 3x^{1/3} + C \end{aligned}$$

$$\text{w) } \int \sqrt[3]{7x} \, dx = \frac{7x^{1/3+1}}{1/3+1} = \frac{7x^{4/3}}{4/3} = \frac{21x^{4/3}}{4}$$

$$\text{v) } \int \frac{1}{\sqrt{x^3}} \, dx$$

$$x^{-3/2}$$

$$= \frac{x^{-3/2+1}}{-3/2+1} = \frac{x^{-1/2}}{-1/2} = \frac{2x^{-1/2}}{-1} + C$$

$$= -\frac{2}{\sqrt{x}} + C$$